Notebook, N-88-08-12

This notebook covers the period August-September 1888. It was used by Erwin Von Wilmowsky as a rough logbook for experiments, analyses, and various other daily operations in the chemical laboratory. Inserted into the book are several loose pages, including a note from Arthur E. Colgate requesting Wilmowsky to prepare chemicals for use in experiment number 162. That experiment was part of the search for an efficient battery for the phonograph. Transcriptions of these battery records can be found in Arthur E. Kennelly Notebook #6. The inside front cover is labeled "E. Wilmowsky's Dpt." According to a list of laboratory experiments, ca. 1903, this book was assigned the number "74." The book contains 189 numbered pages. Only 11 pages have been used.

Only a 2-page entry regarding the establishment of a "Meter Zinc Department" within the chemical laboratory has been filmed.

big copper still in Linseed oil bath.
The Plates were heated to 330°F.
One part of the Liban Turpentine Residue was fried from Turpentine by Naphtha another one by higher heat to 400°F.
Turpentine Residues were resp 1 lb and Liban 1 oz. Ether Residue 2 oz resp ½ oz Liban. insoluble Aragonic 3/4 lb. Spirit also was Liban. Benzol Residue not separated 6 oz.
Chloroform Residues 8 oz resp 6 oz
The Samples excl Loss did contain in Summa only 3 lbs each Shareforce 1 lb loss of Spirit and 1 lb of Liban Asphalt.
For these solutions c. 5 gallons 80% Benzol c. 9 gall Gasoline, c. 3 gall Ether, c. 6 gall Turpentine were used, whereof a part was regained by condensation, another part at last carried for cleaning all the vessels, another part lastly evaporated during the work.

On Aug. 25 '88. Meter and Battery Line.
The Meter Line Department is now full working order. The first 20 Meter Plates with Brass Rods (with 1½ Mercury) are delivered to the Galvanometer Department for testing. The Bath solution, after being cooled by the suspended Hydrate of Cerium and not stirred, is now 3 times daily by c. 6 cc conc. H_2SO_4 very slightly acidulated and kept clear in each bath.
The Electrolysis is only for Meter Plates, not, as hitherto, for Meter Solution.
The latter is made by bought C.P. Sulphate very slightly acid not neutral.
The Cathodes are suspended ½ inch above the bottom and the short circuiting thereby avoided.
The Anodes are now amalgamated to avoid the scaling off.
The 1½ Hg Plates gave good results.
The Solution which gave before a deposit containing Cerium Dioxide in the Meters, now all night being very slightly acid.
The Batteries are in series, daily hand 144 to 192 volts each. The Dynamo has 6 volt in open circuit. The solution is spec 1.08 to 1.21.
Each Bath has 5 Anodes and 5 Kathodes.
The current is 60 Ampères and mins 1 AM to 1 AM excl 12–1½ Summa 12 hours daily. This gives 8/10 lbs C.P. Zinc per diem on sixteen dbze Meter Plates.
Resistance of the Dynamo and Leads is 0.035 Ω.
Density is 26 Amp. for 16 □ inches.

The Mercury Alloys made for stokers and those made for Batteries were made by using a nick alloy containing 63% to 76% Mercury. 63% cannot be galvanized easily, 76% contains about one twelfth of its volume fluid metal, therefore 70% to 72% is the best. In making this nick Alloys there was a loss of 5%.

In making the other Alloys from 1 to 14% the loss did amount on an average to ½ of a percent, whereby the nick Alloy was used.

The five percent alloy was found to be the best for Batteries according Mr. Ed's statement.

All Mercury was washed with 20% Bol. in Nitric Acid and filtered through wood. The lumps of Zinc were molten without Carbon, Cyanide or Ammonchloride.

For 1½ to 19% Alloy these were made at first 3 Battery plates of each then of 70% in forty pieces and then of 5% in 45 pieces. For Electrolysis in with 5% Hg four plates were made for Battery test. All Plates contained according analysis the stated amount of Mercury within narrow limits. Nick contained of 8% Hg and 92% Zn only 0,25% Hg.

Th. Sept 6' 88.

For making Hexachlorbenzene (C_6Cl_6) 474,50 gr. Benzene + 2 lbs Antimony Pentachloride were put in a Florence flask with 3 gallons condenser and a stream of dry chlorine conducted 1½ days to the surface. The heat after rise to c. 50° C by the reaction only on the outside, the mass solidified inside. The resulting black crystalline mass washed by hydrochloric Acid until all Antimony was removed.